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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,466	01/20/2006	Craig N. Schubert	63149A	9819
109 7590 04/28/2010 The Dow Chemical Company P.O. BOX 1967 Midland, MI 48641				
EXAMINER				
WU, IVES J				
ART UNIT		PAPER NUMBER		
1797				
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04/28/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/565,466

**Applicant(s)**

SCHUBERT ET AL.

**Examiner**

IVES WU

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5-9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-9, 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/22)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

#### **DETAILED ACTION**

- (1). Applicants' Remarks and Amendments filed on 4/15/2010 have been received.  
Claims 1-4 and 10 are cancelled.  
Claims 5-7 and 11-12 are amended.  
Consequently, the 112 1<sup>st</sup> rejections and rejections of claims 1-9 and 11-16 in prior Office Action dated 1/19/2010 is withdrawn in view of the present Amendments and Remarks.  
A new ground of rejection is introduced herein.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

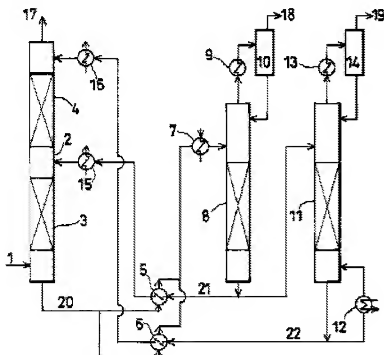
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- (2). **Claims 5-9, 11, 13-16** are rejected under 35 U.S.C. 102(b) as being anticipated by Iljima et al (JP 10-067994).

As to a regeneration process for an aqueous, acid gas-rich absorption Fluid comprising at least one nitrogen-based chemical absorbing agent for an acid gas which absorption fluid contains a chemically absorbed acid gas comprising a) hydrogen sulfide, b) carbon dioxide or c) both of gases, process comprising 1) stripping acid gas from the acid gas-rich absorption fluid in a pressure vessel operated at essentially a single pressure in excess of about 50 psia and below about 300 psia and thereafter 2) recovering an acid gas-rich gas stream from vessel while maintaining the stream under pressure and 3) introducing gas stream into a 1<sup>st</sup> stage compressor and 4) thereafter reducing by compression the volume of gas stream in **independent claim 8**, where at least one Agent in the treatment Fluid is an alkanolamine comprising 2 to 6 carbon atom in **claim 5**, where at least one agent selection in **claim 6**, at least one co-solvent for acid gases selection in **claims 7 and 11**, Iljima et al (JP 10-067994) disclose Advanced removal of carbon dioxide in high-pressure raw material gas, high-pressure recovery and apparatus therefor (Title). To provide a method for removing carbon dioxide in a high-pressure raw material gas by which the **carbon dioxide** at a high concentration in a natural gas or various gases under a high

pressure is removed to a trace concentration with a carbon dioxide absorbent and the carbon dioxide is then recovered from the absorbent under a high pressure (Abstract-problems to be solved). It is amines, amino acid, and those alkali metal salt and specifically the strong amines of chemical absorption nature, alkali metal carbonate, etc. can be added as occasion demands. Hindered amine etc. are mentioned as a base of the above-mentioned physical absorption nature. As hindered amine, N-methyldiethanolamine (MDEA), **triethanolamine (TEA)**, dimethylamino 1,3-propanediol (DMAPD), diethylamino 1,3-propanediol (DEAPD), etc. are mentioned. ([0012]). Potassium carbonate is mentioned as alkali metal salt. In the above-mentioned basic compound, carbon dioxide absorption enhancers such as a **piperazine**, a substituted piperazine, piperidine and substituted piperidine can be added. The carbon dioxide lean solution can also add solvents such as N-methyl pyrrolidone and **sulfolane** as occasion demands ([0013]). It is shown in the Figure below, which has absorber 3, high pressure stripper 8, low pressure stripper 11, regenerated absorbent 22, gas/liquid separation device 10 and 14, cooler 9, 13, 15, 17, 19.



As for material gas 1 in the lower absorption part 3, partial removal of the carbon dioxide levels was made even about 1 vol%. In the top absorption part 4, gas-liquid contact of the material gas 1 was carried out to the reproduction lean solution 22, it became the purified gas

17 of carbon dioxide level of 200 ppm, the temperature of 40°C and **pressure 32 kg/cm<sup>2</sup>** and was discharged from the absorption tower crowing. The load lean solution 20 which absorbed carbon dioxide was heated by 120° C after heat exchange, the high pressure regeneration tower 8 was supplied, and about 60% of carbon dioxide in the load lean solution 20 was emitted. It was cooled by the cooler 9 and the separated carbon dioxide, **water and a little absorbent** were separated by the gas liquid separation device 10 from the carbon dioxide 18. At about 40° C, the carbon dioxide 18 by which cooling separation was carried out is **pressure 9 kg/cm<sup>2</sup>** was compressed into 100 kg/cm<sup>2</sup> by the **compressor which is not illustrated** and was used for liquefied carbon dioxide composition ([0033]). Therefore, the high pressure regenerator is at least in the range between 32 kg/cm<sup>2</sup> ~ 9 kg/cm<sup>2</sup> (127 psia – 448 psia).

As to where gas stream is after compression disposed by injection to an ocean- or sea-bed or into a subterranean chamber or formation in **claim 9**, Iljima et al (JP 10-067994) disclose the compressed carbon dioxide to be used for 3<sup>rd</sup> recovery of a crude oil or can use for subterranean preservation ([0029], ln 12).

As to wherein the stripping acid gas from the acid gas-rich absorption fluid takes place in a pressure vessel at a pressure in excess of about 55 psia and below about 300 psia in **claim 13**, at a pressure in excess of about 130 psia and below about 300 psia in **claim 14**, at a pressure in excess of about 50 psia and below about 200 psia in **claim 15**, at a pressure in excess of about 50 psia and below 155 psia in **claim 16**, Iljima et al (JP 10-067994) disclose purified gas 17 at **pressure 32 kg/cm<sup>2</sup>** and the carbon dioxide 18 at **pressure 9 kg/cm<sup>2</sup>**. Therefore, the high pressure regenerator is at least in the range between 32 kg/cm<sup>2</sup> ~ 9 kg/cm<sup>2</sup> (127 psia – 448 psia).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- (3). **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima et al (JP 10-067994).

As to where heat is supplied to Fluid in the Vessel in a sufficient quantity that Fluid is at a temperature in excess of 280 deg.F and below 400 deg.F in **claim 12**, Iijima et al (JP 10-067994) disclose 130 deg. C ([0029], ln 1). It would be obvious to operate the temperature in excess of 280 deg.F and below 400 deg.F as claimed.

#### *Response to Arguments*

- (4). Applicant's arguments, see Remarks, filed 4/15/2010, with respect to the rejection(s) of claim(s) 1 under 103 rejection in view of Rochelle (US 20070028774A1) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Iijima et al (JP 10-067994).

#### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu

Art Unit: 1797

Date: April 20, 2010

/Duane Smith/  
Supervisory Patent Examiner, Art Unit 1797